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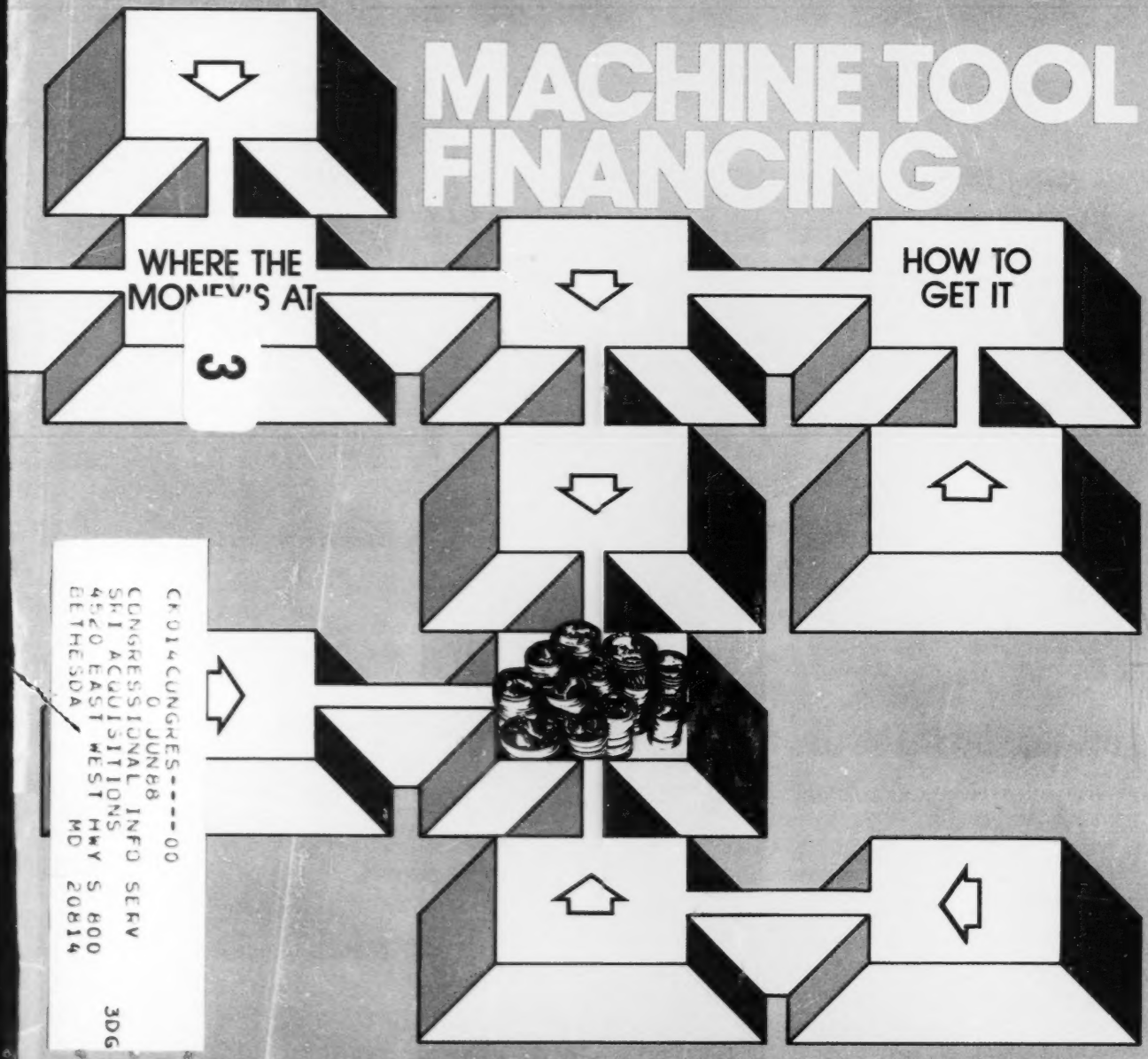
THE MAGAZINE FOR METALWORKING MANAGEMENT



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MANUFACTURING SYSTEMS SERIES 43: DOD'S NOT-SO-MEAN FIGHTING MACHINE

QUALITY IN AMERICA—PART III IN A SERIES: QUALITY CONTROL BY THE NUMBERS

SECOND QUARTER STEEL/NONFERROUS EARNINGS

PLUS: NEW MACHINE TOOL PRODUCT REVIEW

VOL. 226, NO. 22

IRON AGE

AUGUST 19, 1983

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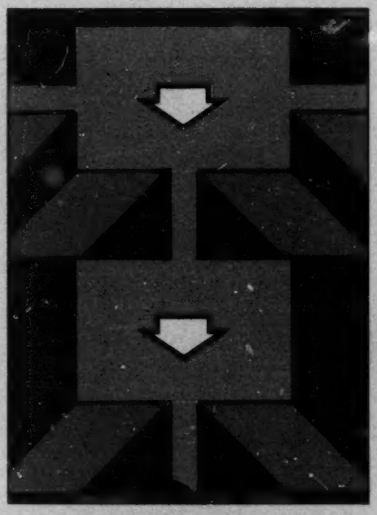

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THE WAR BETWEEN THE STATES FOR HIGH TECHNOLOGY

War among the states for hi-tech industry.

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METALWORKING ORDER TRENDS

Defense contracts break loose and give boost to new orders

At first glance, the overall orders figures for June looked great.

But a closer look showed that the orders picture was good, but not great. Too much of the big dollar volume increase during the month was attributable to defense industry orders. These are very volatile from month-to-month; they just can't be counted on for growth continuity.

Orders received by durable goods producers in June totaled $89.9 billion. This was up $5.1 billion, or 6.0 pct, over the May volume. It was the heftiest monthly increase since January's 8.1 pct gain.

The bulge was in transportation equipment. These orders increased by $4.7 billion, or 25.0 pct, over May. Noted U.S. Commerce Dept. analysts, "Over three fourths of the transportation equipment increase was for defense orders for aircraft, aircraft parts and shipbuilding."

If defense industry orders are excluded, the monthly increase for durables new orders comes out to a modest $1.6 billion, or 2.0 pct.

As noted on the table here, the defense orders bulge shows up in three breakouts of overall orders—in defense industry capital goods, in the transportatioon equipment industry group and in that group's sub-head —aircraft, missiles and parts.

Closely-watched nondefense capital goods orders rose $1.0 billion, or 4.3 pct, to $23.3 billion in June. And here, the rise was centered almost entirely in orders going to commercial aircraft producers and to the computing equipment industries.

Notably, orders going to machinery producers in June—both electrical and nonelectrical—showed declines. These weren't big declines, but they do point to continuing softness in capital goods lines.

So, it appears that the long-awaited resurgence in capital goods lines is not signaled by the June orders data. Capital goods order gains were too heavily centered in defense lines, and gains in nondefense capital goods orders had only a narrow support base.

One good sign for future metalworking business activity was seen in June data on inventories. Stocks held by durable goods producers fell by $1.1 billion. Except for small increases in April and May, inventories have been going down since November 1981. Now, the inventory-paring is going on in just about all durable goods industries.

Source: U.S. Dept. of Commerce Billions of dollars, seasonally adjusted monthly total, unless otherwise noted		Latest Month or Qtr.	Previous Month or Qtr.	Same Period Year Ago
Capital Expenditures (Annual Rates)				
U.S. Industry, Total	2nd Qtr.	$302.2*	$302.3	$323.2
Manufacturing, Total	2nd Qtr.	111.3*	112.8	123.8
Manufacturing, Durable Goods	2nd Qtr.	50.9*	52.8	59.0
Mining Industry	2nd Qtr.	14.6*	14.6	16.6
Key Indicators, Durable Goods Manufacturing				
New Orders	June	89.9	84.8	73.0
Shipments	June	85.9	83.0	77.3
Inventories	June	169.6	170.7	181.5
Unfilled Orders	June	305.0	301.1	296.8
New Orders, Metalworking				
Capital Goods Producers, Nondefense Industries	June	23.3	22.3	18.7
Capital Goods Producers, Defense Industries	June	8.3	4.8	5.7
Primary Metals, Total	June	9.8	10.0	8.3
Steel (SIC 331)	June	3.8	4.2	3.6
Iron & Steel Castings (SIC 332)	June	1.1	1.1	0.7
Nonferrous Metals	June	4.9	4.7	4.0
Nonelectrical Mach.-Equip. Industries, Total	June	14.7	15.0	12.6
Engines & Turbines	June	0.8	1.2	0.9
Farm Machinery & Equipment (Shipments)	June	0.9	0.9	0.8
Construction, Mining & Materials Hdlg. Equip.	June	2.5	2.5	2.2
General Industrial Machinery	June	1.1	1.1	1.1
Fluid Power Equipment** (Index-1972=100)	June	253	223	199
Metalworking Machinery	June	0.6	0.7	0.7
Machine Tools, Total (Millions $, unadjusted)***	June	145.3	135.3	125.9
Machine Tools, Metal-Cutting***	June	96.5	93.6	91.7
Machine Tools, Metal-Forming***	June	48.8	41.7	34.2
Electrical Mach. & Equip. Industries, Total	June	13.7	13.8	11.8
Elec. Transmission Equip. & Industrial Apparatus	June	1.9	1.5	1.6
Household Appliances	June	1.2	1.3	1.1
Communication Equipment	June	4.8	4.3	4.1
Transportation Equip. Industrial, Total	June	23.3	18.6	16.2
Motor Vehicles & Parts (Shipments)	June	12.9	12.3	10.8
Aircraft, Missiles & Parts	June	8.4	4.3	5.1
Shipbuilding & Military Tanks	June	1.2	1.2	0.4
Fabricated Metal Products, Total	June	10.3	10.0	9.0
Instruments, Total	June	4.2	4.0	4.1

*Est.—Commerce Dept.; **Source: National Fluid Power Assn.; ***Source: NMTBA.

STILL NO HINT OF A REBOUND IN STEEL/NONFERROUS PROFITS

Steel slips again; nonferrous results are mixed in second quarter.

BY GEORGE J. MCMANUS AND ROBERT J. REGAN

Steel

The steel industry lost another half billion dollars in the second quarter of 1983.

That brought to more than $4 billion the industry's loss since the start of 1982.

The second quarter was a particularly bad time. Estimated shipments of 17 million tons were up 6 pct from the second quarter of 1982 and 11 pct from the first quarter of 1983.

The mills had the full benefit of wage reductions that took effect March 1. There has been strenuous cost cutting throughout the industry.

Nevertheless, the seven largest mills had a combined loss of $516 million in the second quarter. That compared with $275 million in the second quarter of 1982.

The basic problem was continued weak demand. Steel shipments were up from the lows of 1982, but they still weren't good. In what is normally the peak quarter of the year, the mills shipped at an annual rate of only 68 million tons.

What really killed the industry, though, was price cutting. "The competitive pressure in prices is more severe than a year ago . . .," said Inland Steel Co.

The mills are now trying to achieve a degree of price stability. There is said to be general support for the higher prices on sheets and bars. Increases were announced for these products in February, but the mills were never able to collect the new prices.

Prices appear "to have bottomed out for most of our products," says John B. McKinney, president of Laclede Steel Co. Laclede's products include bars and rods.

As far as volume is concerned, no big upturn is in sight. July turned out to be a typical July.

August isn't looking much better and the early automotive orders for September are disappointing.

The weakness of the capital goods sector continues to depress plates, structurals and tubular products.

There are some bright spots in the steel picture. Laclede Steel went from a loss of $1.9 million in the second quarter of 1982 to a profit of $1.4 million in the second quarter of 1983. Laclede went from a loss of $5 million in last year's first half to a profit of nearly $2.8 million in the first six months of 1983.

Nucor Corp. continues to go its profitable way. Nucor's $4.8 million profit in the second quarter was up 71 pct from the second quarter of 1982.

National Steel Corp. had a net loss of $99 million, but most of this was due to an additional $100 million write-off on the proposed sale of Weirton Steel to employees.

On its operations, National had a profit of $800,000. Particularly impressive was an operating profit of more than $9 million on steelmaking. This was the first profit on steel since the third quarter of 1981.

United States Steel Corp. had a net loss of $112 million in the second quarter. That compared with a $4 million profit in the second quarter of 1982. U. S. Steel's operating profit of $163 million in the second quarter represented a $369 million improvement over the first quarter operating loss.

From Marathon Oil, U. S. Steel had an operating profit of $290 million before foreign income taxes. The corporation's interest charges, which largely reflected the Marathon acquisition, fell from $264 million in the second quarter of 1982 to $208 million in the second quarter of 1983.

Bethlehem Steel Corp. lost $92.7 million in the second quarter. That was down from $175 million in the first quarter of 1983, but up from $47 million in the second quarter of 1982.

Bethlehem is primarily a steel company and its dollar sales provide a rough measure of what has been happening to steel prices.

The company's dollar sales were down 16 pct from the second quarter of 1982 although its tonnage shipped was up slightly.

Like Bethlehem, Republic Steel Corp. shipped more tons in the second quarter, but took in fewer dollars than in the second quarter of 1982.

The company's net loss of $45 million in the second quarter compared with $85 million in the second quarter of 1982 and $35 million in the first quarter of 1983. Excluding the effects of accounting and other adjustments, Republic did better in the recent quarter than in earlier periods.

Inland Steel had a net loss of $29.7 million in the second quarter. This was mildly disappointing. Inland was the one large steel company which earlier had been given a shot at making money in the second quarter.

Inland's comments on the market outlook were more bullish than those of other producers. The company "continues to experience strong demand for cold-rolled and coated sheet products, with orders extending through the third quarter and beyond."

Inland also reported "a rising trend in orders for bars, structurals, and plate products . . ."

Nonferrous

Results were mixed for the nonferrous metals industries in the second quarter of 1983—making the period something of a mixed blessing when compared with a dismal first quarter and a wretched second quarter of 1982.

Most of the improvement showed up in the sales column and the sprinkling of profits gainers was augmented by a few cases where losses were smaller this time around.

Many key metals-consuming industries did well in the second quarter, including the automotive, appliance, nonfood retail and aerospace industries, which suggests that better things are in store for the metal producers in the second half of the year—interest rate trends permitting. In the same vein, the beverage industry showed smart gains in the second quarter, but the benefit didn't extend to the container manufacturers in the same period.

The aluminum industry, which has a big stake in the beverage container business, moved up in the sales and shipments columns, but Aluminum Co. of America was the only gainer on the profits side. Alcan's small profit was down from the same 1982 period and both Reynolds and Kaiser Aluminum spilled more red ink this time around. Alcoa cited higher prices for ingot and some mill products, moderation of labor

Still No Rebound for Steel . . .

Millions of Dollars		Earnings			Sales		
	E/S Pct	2nd Qtr. '83	2nd Qtr. '82	Pct Change	2nd Qtr. '83	2nd Qtr. '82	Pct Change
USS	—	(112.00)	4.00	—	4,363.00	5,100.00	−14.0
Bethlehem	—	(92.70)	(47.10)	—	1,234.60	1,470.50	−16.0
Armco	—	(75.80)	(57.40)	—	1,079.90	1,464.50	−26.0
National	—	(99.17)	(48.02)	—	752.14	787.77	−4.5
Republic	—	(45.41)	(85.26)	—	666.33	744.87	−11.0
Inland	—	(29.74)	(23.21)	—	773.41	743.65	+4.0
LTV	—	(61.30)	(18.80)	—	993.70	1,286.50	−22.0
Total	—	(516.12)	(275.79)	—	9,862.18	11,577.79	−15.0
Wheel.-Pgh.	—	(18.89)	(13.17)	—	191.57	187.39	+2.2
CF&I	—	(14.67)	(5.91)	—	56.93	97.02	−41.0
Copperweld	—	(12.37)	0.90	—	79.98	101.25	−21.0
Lukens	—	(3.33)	1.15	—	87.27	97.91	−11.0
Florida	—	(0.76)	(0.91)	—	61.52	58.79	+4.6
Laclede	—	1.41	(1.94)	—	45.56	43.67	+4.3
Nucor	3.8	4.84	2.83	+71	127.61	124.49	+2.5
Quanex	—	(0.25)	1.64	—	74.63	102.86	−27.0
Interlake	1.7	3.60	1.00	+260	206.00	198.20	−3.9
Cyclops	—	(0.45)	0.42	—	243.20	227.71	+ 6.8
Carpenter	8.6	9.70	9.70	—	112.40	122.50	+8.2

. . . And Nonferrous Is Not Much Better

Millions of Dollars	Earnings			Sales and Other Revenue		
	2nd Qtr. '83	2nd Qtr. '82	Pct Change	2nd Qtr. '83	2nd Qtr. '82	Pct Change
Alcan	3.0	5.0	−40.0	1,329.0	1,193.0	+ 11.3
Alcoa	34.6	15.1	+129.1	1,257.9	1,239.5	+ 1.5
Amax	(21.2)	(42.7)	—	567.8	621.9	− 8.7
Asarco	27.6	(24.8)	—	380.3	331.7	+ 14.7
Brush Wellman	6.3	4.6	+37.0	60.5	51.6	+ 17.2
Cabot Corp.	14.1	24.6	−42.7	389.0	404.6	− 3.8
Callahan Mining	0.9	(0.7)	—	6.3	3.5	+ 80.0
Cominco	(3.7)	18.1	—	413.5	385.0	+ 7.4
Engelhard	18.0	16.3	+10.4	617.0	447.4	+ 37.8
Falconbridge Ltd.	(7.3)	(16.2)	—	180.8	145.1	+ 24.6
Hecla Mining	9.9	(3.3)	—	24.8	10.6	+134.0
Homestake Mining	9.9	2.7	+266.7	64.8	48.5	+ 33.6
Inco	(39.7)	(36.9)	—	284.0	357.0	− 20.4
Kaiser Aluminum	(51.3)	(30.0)	—	782.0	840.2	− 6.9
Martin Marietta	57.0	40.2	+41.8	953.5	909.7	+ 4.8
Noranda Mines	9.2	(57.1)	—	795.1	749.1	+ 6.9
Olin	24.0	23.4	+2.6	490.3	474.2	+ 3.3
Phelps Dodge	0.3	(19.4)	—	282.1	263.2	+ 7.2
Revere Copper & Brass	2.8	(14.2)	—	119.0	166.4	− 28.4
Reynolds Metals	(69.1)	25.5	—	853.4	807.8	+ 5.6
Vulcan Materials	15.4	18.7	−17.6	199.9	187.7	+ 6.4
Wolverine Aluminum	1.1	0.3	+266.7	22.7	18.2	+ 24.7

( ) denotes loss

Brush Wellman: Net for 1982 quarter is after $212,000 loss from discontinued operations. **Cominco:** Canadian funds. Net for 1982 period is after $18.1 million extraordinary credit from sale of oil and gas properties. **Falconbridge Ltd.:** Canadian Funds. **Hecla Mining:** Net for 1983 period includes $3.4 million tax-loss carryforward. **Martin Marietta Corp.:** Net for the 1983 quarter includes pre-tax gain of $67 million from sale of assets. **Noranda Mines:** Canadian funds. **Reynolds Metals:** Net loss for 1983 period includes a $52.7 million charge for scheduled plant closings. Net income for the 1982 period includes an extraordinary $4.6 million gain from exchange of common stock for debentures.

costs and lower energy costs for a 129 pct gain in second quarter profits, which still left it with an after-tax rate of return of about 2.7 pct.

The aluminum producers managed to pare down heavy inventories in the first half of the year. Production started curving upward in the second quarter, in response to temporary cuts in power rates in the Pacific Northwest in some cases, but industry officials have indicated they see no return to inventory accumulation as long as demand continues to improve.

Reynolds Metals' $69.1 million net loss included a $52.7 million charge for estimated cost of writeoffs associated with planned closings of "several uneconomic production facilities." It is believed that at least one of two Reynolds smelters is earmarked for shutdown—some sources have predicted that two will be closed—which will put a sizable dent in domestic primary aluminum capacity as the recovery progresses.

Copper prices have improved, though not as dramatically as aluminum prices, since the start of the year. Asarco Inc. and Phelps Dodge Corp. were helped to varying degrees by this, with Phelps Dodge edging into the black after five consecutive quarterly net losses. The company's major copper units didn't resume production until May 2, after having been shut down for more than a year.

Asarco credited its improved results to better prices and sales of copper and silver, plus lower operating and overhead costs and the shutdown and sale of money-losing properties and investments. Asarco said it was maintaining a conservative view of prospects for the balance of the year.

The consumer-led recovery to date has yet to reach down to the capital goods sector, which leaves the nickel producers with more of a wait than most of the other nonferrous producers.

Inco Ltd.'s nickel deliveries increased about 15 pct, compared with the second quarter of 1983, but copper, silver, cobalt and platinum group shipments were down sharply because of production shutdowns.

Falconbridge Ltd. cut its loss by more than half on a 24.6 pct rise in sales.

The lagging capital goods sector slowed recovery for Amax Inc.'s molybdenum, nickel, tungsten and specialty metals units. Its aluminum earnings were up and the copper, lead, zinc and precious metals division broke even. □

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MACHINE TOOL FINANCING— WHERE THE MONEY'S AT, AND HOW YOU CAN GET IT

BY GEORGE A. WEIMER

"Pride of ownership used to be a machine tool user's motto. Equity was considered a far higher priority in machine shops than it is today judging from financing trends in the industry. Leasing for example, has grown from a very little part of the business a few decades ago to a very significant part of the machine tool industry today. Part of this growth is obviously a matter of the far higher prices for modern computer numerical control (CNC) equipment today compared to the simpler lathes of decades past. Part is also due to the far higher level of financial sophistication in the industry and the new financial tools banks as well as manufacturers offer. All these factors have moved much of the machine shop world from the "pride of ownership" to the "price of use."

In some cases, leasing has even allowed people to enter the machining business with very little personal capital.

Jack Hooper was an instructor at a trade school in Nashville. With $2,500 each, he and several partners, and a DoAll machine tool lease plan, now own and operate Hooper Mfg. with $23 million in sales annually.

The machine shop world has moved from 'pride of ownership' to the 'price of use'

The vital elements of the operation were the ability of beginning machinists to quickly master high precision work and the DoAll Leasing Program that gave the fledgling shop the equipment it needed to get started.

"All were essential, but the DoAll Leasing Program was the indispensable key. It put me in business; without it, I'd still be a $10,000-a-year vo-tech instructor," says Mr. Hooper.

Mr. Hooper says that the difference between a bank lease program and a manufacturer's lease program is "DoAll knows what a machine tool can do."

"I was sure financing would be no problem. On that score, however, I was wrong. All we had was a solid product idea—no track record, no credit lines, and no one among the bankers we approached knew anything about machining. We could get lines of credit for operating needs, but not for equipment," says Mr. Hooper.

"We reserve our banker for cash flow requirements. We don't want to use up all of our credit on machines, then have to scramble to meet the short-term needs that pop up from time to time in every operation," he says.

A major advantage of leasing, says George Drost, assistant general counsel of DoAll is that the customer has immediate use of the equipment while he's making payments.

The trends show our sales will be for larger, more sophisticated equipment at prices substantially higher than obtained in our traditional markets. The enormous technological changes of the past few years have led to other changes in the way in which financing is done. Because of the far greater amounts of money involved, we have an arrangement with an outside financing company.

Some banks don't understand the machine tool business, he believes. The customer may have some special aspects for financing that would not be acceptable to a bank. "In many cases, we can accommodate him," says Mr.

TRENDS IN EQUIPMENT LEASES

	(Millions of Dollars)				Pct. Annual Growth		
					Historic	Projected	
ITEM	1967	1981	1985	1990	67/81	81/85	85/90
Equipment Sales	53650	216390	308000	516000	10.5	9.2	10.9
Pct. Leased	17.3	18.4	19.8	20.5	—	—	—
New Equipment Leases	9281	39855	61115	105990	11.0	11.3	11.6
By Type:							
Capital Leases	4595	23421	37195	66035	12.3	12.3	12.2
Operating Leases	4686	16434	23920	39955	9.4	9.8	10.8
By Lessor:							
Manufacturers' Leases	3243	8000	11955	21420	6.7	10.6	12.4
Third Party Leases	6038	31855	49160	84570	12.6	11.5	11.5
Leasing Companies	5133	26110	38465	64875	12.3	10.2	11.0
Banks	905	5745	10695	19695	14.1	16.8	13.0

Source: Predicasts, Inc.

MACHINE TOOLS

ITEM	1967	1972	1977	1981	1985	1990
	Millions of Dollars					
Equipment Sales,	1430	1900	2500	3200	4700	7500
Pct. Leased	2.1	3.7	5.8	6.1	8.0	9.0
Equipment Leases	30	70	145	195	375	675
By Type:						
Capital Leases	29	68	142	192	370	665
Operating Leases	1	2	3	3	5	10
By Lessor:						
Manufacturers' Leases	3	10	20	25	60	100
Third Party Leases:	27	60	125	170	315	575
Leasing Companies	27	60	125	170	315	575
Banks	—	—	—	neg	neg	neg
Net Equipment in Place,	9300	14300	16300	25100	36000	54000
Pct. Leased	.9	1.3	3.0	3.0	3.4	5.2
Net Leases in Place	80	185	490	765	1225	2800
Capital Leases	8	180	480	750	1200	2750
Operating Leases	2	5	10	15	25	50

Source: Predicasts, Inc.

Drost.

"The big advantage is to be able to move the customer into a tailor-made financial plan where he's paying an affordable monthly amount and is able to use a machine that provided a good income. Whatever the interest rate happens to be at any given time, the decision to finance boils down to how much money the equipment can make against the cost," says Mr. Drost.

"We have to be creative in the ways we use money. We are not bankers. We are in the financing business to sell metalworking equipment. To do that, we have to take the role of financier and create methods to get capital goods into the hands of users during these difficult financial times," he says.

And, many banks are betting that the capital goods leasing business is a growth industry. Some seem to have, in just a few short years, learned a great deal about machine tools.

Whatever doubts they might express about the ability of the machine tool industry in the United States to respond to the challenge of overseas competition, everyone from the CEO's of both domestic and overseas machine tool manufacturers, to security analysts, corporate planners and consultants, believes that long term, the worldwide market for machine tools will prove enormous. "Indeed, the elements supporting this optimistic outlook are so varied that, even should one or two of them not materialize, the others should provide plenty of forward momentum," a source at Citicorp Industrial Credit says.

Purchasers of new equipment will soon find that the Reagan Administration's new tax policies give them considerably more financial leverage. The new rules establish a shorter write-off period for new plant and equipment, and will tend to increase cash flow and the rate of return on capital expenditures, the bank source says.

A Standard & Poor's survey of trends in the machine tool industry concludes that "by thus decreasing the minimum rate of return, the criteria for investment have been eased, and an affirmative capital spending decision made more likely in many cases."

Industry observers agree that, while its effects have been limited by the recession, the tax legislation provides solid incentives for manufacturers to upgrade their existing machine tool stock with new equipment. These incentives have certainly been a major factor behind recent new purchases.

Financing or leasing new equipment should contribute to, not detract from, the achievement of a firm's basic financial objectives, as well as meet the need for increased productivity. The key point, in other words, is that purchasing or leasing a new piece of equipment has strategic implications that can be very advantageous over the long term, but will vary with each financing structure and corporate situation.

How does Citicorp Industrial Credit evaluate machine tool companies for credit? In much the same way that management looks at its own operations. Cash flow is important, of course, but so is business potential, as well as financial history. But perhaps the most important consideration for the financing firm, and thus for the lender, is the machine being financed: its anticipated life span, its potential for obsolescence, long-term as well as short.

So it's to a borrower's obvious advantage to choose financing from a firm thoroughly familiar with the machine tool industry, the borrower's own business, and the particular piece of machinery being acquired.

The advantages of financing alternatives will become even more important as CNC equipment becomes a more prominent element in businesses' challenge to increase productivity. While the new equipment does that, and does it very well indeed, the initial investment can be substantial, either for a small machine shop purchasing a $100,000 CNC turret lathe, or for a major automobile manufacturer buying a $6 million automated assembly plant. How can such an investment be made and at the same time improve a business's important financial indicators, like return on investment? In acquiring such equipment, how can a business take maximum advantage of investment tax credit and depreciation allowances, while reducing the impact on cash flow?

Because of the high cost of the new technology, such questions, whether or not they result in equipment financing, will probably become as important as acquiring basic machine tool equipment as the technical specifications of the equipment itself, Citicorp believes.

What are the ways? Citicorp outlines the basic financial tools available.

First is basic equipment financing, the classic form of leveraging a new equipment purchase, also referred to as a 'capital lease.' With little or no cash outlay, equipment users acquire productive assets. The lessor loans up to 100 percent of the equipment's purchase price, while the lessee retains all tax benefits and ownership interest. A constant payout, coupled with flexible terms, five to seven years is typical, but up to 10 years is possible, makes this a popular form of financing in the machine tool industry.

Given volatile interest rates, a firm will want to preserve the maximum degree of flexibility in whatever financing vehicle is chosen.

Some companies offer borrowers a float and fix option on their lease, whereby a borrower may float the cost of the lease at an increment over prime

for a period up to one year and fix the rate any time during the period for the remaining term. In capital leases, the equipment is listed as an asset, and lease payments as offsetting liabilities an important consideration for some firms.

Then there is an operating lease. This is not really a form of financing but rather a pure lease; in effect, a rental. The user operates the equipment for a specified period of time, at a cost of less than full purchase price, but never takes title.

A major strategic consideration with operating leases is that they are off balance sheet: the lessee's rental payments are shown as an operating expense, and the equipment is not capitalized on the user's balance sheet.

Typically, operating leases are drawn only for smaller ticket items with strong residual values, since the lessor ends up as the owner at the end of the lease period.

Major benefits to the user? The company has use of the equipment required for a specified purpose over a designated period of time, usually two to three years. Because they don't pay the full amount of the equipment's original cost, a user can preserve the cash for higher yielding investments.

And there's vendor leasing. In this form of financing, a third party, typically a finance company, serves as an intermediary between an equipment manufacturer, the vendor, and the user. From the manufacturer's point of view, the appeal is obvious, another party handles all the details of financing, specifically documentation, billing, collections and funding.

The manufacturer's capital requirements are reduced, and cash flow is accelerated. Vendor leasing provides manufacturers with a method of offering price reduction through financing by subsidizing their rates in lieu of discounting equipment cost. Tax and ownership benefits are retained by the manufacturer or by the third party financer. For the user, the major benefits are convenience and assured financing at a specific rate.

And there's tax leasing which is primarily used to finance large capital assets. Tax benefits are retained by the

CINCINNATI MILACRON PLANS

EXAMPLE

1. Machine base list price (exclusive of local sales tax and shipping)	$98.850
2. Down payment (minimum 10%)	9,885
3. Balance to finance (line 1 less line 2)	88,965
4. Interest on balance (line 3) at 7½% under '83 SUMMER SPECIAL plan*	18,911
5. Total cost over life of deferred payment plan (line 3 plus line 4)	107,876
6. First monthly payment (180 days after shipment of machine)	2,780
7. Subsequent regular monthly payments (54)	1,946
First Year Cost Computation:	
8. Out of pocket costs:	
a. Down payment (line 2)	9,885
b. Monthly payments first year (line 7 x 5 plus line 6)	12,510
c. TOTAL	22,395
9. Available tax benefits:	
a. Investment tax credit, 8% option (line 1 x .08)	7,908
b. Depreciation tax reduction, assuming 50% tax bracket (line 1 x 15% x 50%)	7,414
c. Interest-paid tax reduction assuming 50% tax bracket	2,736
d. TOTAL	18,058
10. NET FIRST YEAR OUT-OF-POCKET COST. (line 8c less line 9d)	4,337
Cost Per Hour in One-Shift Operation (line 9 ÷ 2000 hrs.)	$2.17
Cost Per Hour in Two-Shift Operation (line 9 ÷ 4000 hrs.)	$1.09

WATERBURY FARREL-TEXTRON PLANS

Plan A—Five-Year Conditional Sales Contract Deferred Payment Plan

1. 10 pct down-due before shipment-on standard machine, accessories and tooling.
2. 50 pct down on all special tooling and/or accessories-due before shipment.
3. Customer also pays freight and any applicable state sales tax.
4. Five-year financing (56 payments) with first payment due five months after date of shipment.
5. Monthly payment—$25.20 per $1,000.00 financed.
6. Full investment tax credit passed to customer.
7. No prepayment penalty.
8. Simple interest rate—13.4 pct per annum.

Plan B—Three Years Conditional Sales Contract 11.25% Interest

1. 10 pct down-due before shipment-on standard machine, accessories and tooling.
2. 50 pct down on all special tooling and/or accessories-due before shipment.
3. Customer also pays freight and any applicable state sales tax.
4. Three year financing (36 payments) with first payment due one month after date of shipment.
5. Monthly payment—$32.86 per $1,000.00 financed.
6. Full investment tax credit passed to customer.
7. No prepayment penalty.
8. Simple interest rate at 11.25 pct per annum.

Plan C—Five Years Operating Lease Program

1. Advance rental—5 months (to be applied against last 5 payments).
2. Lease factors:
   a) ITC* retained by Textron—$17.76 per $1,000.00 selling price.
   b) ITC* passed to customer—$20.41 per $1,000.00 selling price.

Note: Above Finance Plans apply to single machine orders. For large projects or systems which may involve special tooling, contact National Sales Manager.

Subject to credit approval.

Plans and rates will remain in effect for an unspecified period of time. Waterbury Farrel reserves the right to make changes but not during the life of any contract.

*Investment tax credit.

Acme-Cleveland Corp.
Profitpac—Financing & Leasing Plans

Examples—$150,000 Lease Transaction—Plans A-C
Examples—$150,000 Conditional Sales Contract—Plans D-F

PLAN A—Effective Interest Rate 13.78 Pct
4 years—no payments first 3 months

1st thru 3rd payments	$ -0-
4th thru 48th payments	$ 4,387.50
Purchase option	$ 1.00
1st year cost	$39,487.50
Avg. cost per hour (over 4 years)	$ 19.74*
Monthly payment factor	.02925

PLAN B—Effective Interest Rate 13.78 Pct
6 years—no payments first 3 months

1st thru 3rd payments	$ -0-
4th thru 72nd payments	$ 3,232.50
Purchase option	$ 1.00
1st year cost	$29,092.50
Avg. cost per hour (over 6 years)	$ 14.87*
Monthly payment factor	.02155

PLAN C—Effective Interest Rate 13.78 Pct
8 years

1st payment (Factor .05000)	$ 7,400.00
2nd thru 96th payments	$ 2,472.00
Purchase option	$ 1.00
1st year cost	$34,692.00
Avg. cost per hour (over 8 years)	$ 12.12*
Payment factor 95 months	.01648

A floating interest rate plan with a 5 pct downpayment is also available. Principal payments are fixed. Interest charged is 1¼ pct over prime floating daily.

PLAN D—Effective Interest Rate 12.5 Pct
3 years

1st thru 36th payments	$ 4,966.31
1st year cost	$59,595.71
Avg. cost per hour (over 3 years)	$ 23.84*
Monthly payment factor	.0331087

PLAN E—Effective Interest Rate 13 Pct
5 years

1st thru 60th payments	$ 3,376.38
1st year cost	$40,516.56
Avg. cost per hour (over 5 years)	$ 16.21*
Monthly payment factor	.0225092

PLAN F—Effective Interest Rate 14 Pct
7 years

1st thru 8th payments	$ 2,778.59
1st year cost	$33,343.08
Avg. cost per hour (over 7 years)	$ 13.34*
Monthly payment factor	.0185239

- No downpayment required.
- No payment option for 3 months on 4 and 6 year plans.
- Competitive interest rates.
- Interest fixed at time of shipment—Plans A-C.
- Interest fixed at time of credit approval—Plans D-F.
- No prepayment penalty. (Rule of 78's applies to early termination).
- Interest rates are subject to change without notice.

*Based on 2,500 hours per year. Cost per hour can be further reduced by taking into consideration the investment tax credit of 10 pct and the tax deductions for the lease payments or depreciation.

owner/lessor; the result is a lower financing rate for the equipment user.

Most of the large scale benefits of the safe harbor leasing provisions of the Economic Recovery Tax Act of 1981 were eliminated in recent legislation.

The same legislation offered a "window of opportunity" for firms that placed orders for new equipment prior to July 2, 1982, and expected to take delivery before the end of the year.

While 1983 will be a transition year; the new Tax Equity and Fiscal Responsibility Act of 1982 (TEFRA) creates brand new opportunities for "finance" lease structuring that will apply, generally, to leases entered into after 1983. As a result of TEFRA, from 1984 on, tax leasing should become a more attractive means of financing since it allows both below-market rate financing and also caps residual value, Citicorp points out.

A wide variety of special features can be structured , into any of these financing alternatives. When considering these alternatives, borrowers should focus heavily on flexibility of terms, the key benefit to machine tool manufacturers, dealers and end users, Citicorp Industrial Credit advise.

Adds Stanley A. Harris, vice-president and program manager, machine tools, Citicorp Industrial credit, "this is relatively new for the bank. The machine tool business has never been traditionally a big leasing business." One reason, he says for the trend is the very high cost of new equipment.

How does Citicorp evaluate a potential new customer for leasing arrangements? "At least 4 years in business. Twenty or more employees. A profitable track record. And we look at his company compared to his peers," Mr. Harris says.

Richard W. Crannell, assistant vice-president, Citicorp Industrial Credit, adds that another development in leasing will come with the TEFRA-spawned finance lease with fixed prices and purchase options. This begins in January of 1984.

"Many of the large manufacturers are already clients of the bank and we feel it's part of our job to bring our resources to bear. We bring all the traditional tools." But he adds, if the corporate tax rate drops significantly, it does not bode well for leasing.

The business of machine tool leasing has others in banking and financing interested as well. General Electric Corp., Litton Industries Inc., and numerous other companies have developed very sophisticated approaches to the financing of capital equipment. However, it's often the builders who are the customers' first money call.

Dan R. McCullough, vice-president, industrial financing, Textron Financial Corp., Providence, R.I. adds, "As far as I know, we are the only full service captive financial organization in the U.S. We have a $400 million receivables portfolio with $20 million in machine tools."

What about TEFRA? TEFRA does make some significant changes in terms of lease law. "It will make leasing significantly more popular in the machine tool industry," Mr. McCullough says.

Mr. McCullough also says the Japanese "consignment" approach is making American lessors' lines exceedingly difficult.

Several other large machine tool companies have captive financial organizations as well.

Bendix Automation Group for exam-

DOALL FINANCING PLANS

30-60-90 DAY CONTRACT

1. A contract is signed by both parties with machine title passing on final payment.
2. Customer pays 1/3 down at time of ordering.
3. The remaining 2/3 is divided by 3 and is paid in 30, 60, and 90 days after machine delivery with no interest or carrying charges.

12, 18 or 24 MONTH CONDITIONAL SALES CONTRACT

1. A contract is signed by both parties with machine title passing on final payment.
2. Customer pays 1/3 down at time of ordering.
3. The balance of 2/3 is computed with 8% add-on interest (16%—simple) and spread over the contract period for monthly payments.

3-YEAR LEASE PLAN WITH PURCHASE OPTION

1. A contract is signed by both parties.
2. The purchase price is divided by six.
3. The customer pays 1/6 of the machine price every six months for three years with the first payment made as the down payment at the time of order placement.
4. At the end of three years (six payments) the customer may then lease at a rate of 10% per year of purchase price.
5. If the customer chooses to consider the purchase option, it may be used at the end of the first year or any six-month period thereafter.
6. 75% of all amounts paid in the first three years apply to the machine purchase.

ASSOCIATES CONDITIONAL SALES CONTRACT THROUGH DOALL

1. For machines at $30,000 and more.
2. A contract is signed by both parties with machine title passing on final payment.
3. A 10% down payment is made at time of ordering.
4. Balance is financed at 14% simple interest over five years.

ple, and its predecessor companies have been providing customer financing for about 25 years. "Recently, we both expanded our financial capacity and developed several new programs," says Frederick W. Searby, president, Bendix Automation.

Like all captive finance companies, Bendix Finance Corp. is "a complement to our ongoing and aggressive sales efforts. It works closely with our operating units to develop programs and plans that will meet the many and varied cash flow and other needs of our current and prospective customers, and respond to changing economic, legislative, and competitive influences," says Mr. Searby.

Bendix Finance is its own profit center, to be sure. But contrary to independent lenders, its primary charge is to "help put the productivity of our machines, systems, and other products to work for the current and prospective and our operating units," says Mr. Searby.

"We hope that Bendix Finance is recognized by our customers for its flexibility, in plans and programs as well as in terms. It offers leasing and financing and choices of fixed or fluctuating rates, for example. In short, because it strives to remain in tune to ever-changing economic, legislative, and competitive trends and influences, it consistently tailors plans and programs to virtually all sizes and types of companies," Mr. Searby says.

Traditionally, leasing has been the thrust of Bendix Finance business, with either fixed or fluctuating rates, no downpayment, fixed monthly payments, and purchase options.

Offering a return option and terms for five years, Bendix Finance Corporation's leasing plans have always sought "to minimize cash flow uncertainties associated with equipment acquisition. They have protected customers from inflation, allowing them to make future payments with tomorrow's cheaper dollars, and they have helped protect them from equipment obsolescence," he notes.

"Our customers have often chosen the option of purchasing their leased equipment at the end of their lease term, however, because of the equipment's inherent and enduring performance, precision, and reliability characteristics."

Bendix also now offers financing designed to allow companies to preserve their working capital while enjoying all of the tax benefits of equipment ownership from the Investment Tax Credit to depreciation, financing offers a choice of "balloon" or reverse downpayments and correspondingly low monthly payments.

This program includes fixed rate and fluctuating rate plans with a competitive, and in some cases below market, annual percentage rate. Terms are normally for five years. Contrary to traditional financing arrangements, the "balloon" for final lump sum payment of up to 25 pct of the equipment cost has replaced an initial downpayment. The larger the "balloon," the smaller the customer's payment each month, Mr. Searby explains.

Other financial tools include promotional financing, a vehicle for moving inventory and stimulating sales by offering customers below market interest rates, is one example. Another example is a unique equipment rental program currently being offered in conjunction with certain operating units in the Bendix Automation Group.

Applied to selected used machines currently in stock and available for quick delivery, the program allows customers to realize significant productivity improvements while limiting their obligation to as few as six but not more than 12 months, Mr. Searby says.

The program's monthly payments are a small fraction of the equipment's purchase price, and customers are allowed to apply 100% of those payments to the purchase of their equipment at a later date. Bendix Finance may even quote additional financing as required to assist customers to purchase the equipment at the end of their rental terms, Mr. Searby says.

Another very useful financing tool for capital goods, particularly for projects of $10 million or less is the use of Industrial Revenue Bonds (IRB's), says A. C. McDaniel, president, Hill Acme Corp., Cleveland. "This is a device good for both process machinery and buildings. An IRB approach is good for anything that lasts 10 years or longer." Approximately 7 to 13 years is the life of an IRB loan.

What's so special about the IRB approach? "It costs less, generally 25 to 30 pct. less than floating prime," says Mr. McDaniel.

There are also definite repayment plans. It's not like borrowing from a bank. It's not a callable loan.

IRB's are aimed at small and medium sized companies. "It's a carrot provided by the IRS," says Mr. McDaniel.

Financing, particularly leasing in its several forms, is a particularly useful tool to upgrade your customers' technical base, add various experts.

"I can't overemphasize the impor-

tance of having a good financial outlet and maintaining an excellent working arrangement" says George W. Fels, treasurer, LeBlond Makino Machine Tool Company, Cincinnati, Ohio. "In today's machine tool market, delivery is a critical item. There's an overabundance of supply and you just don't have the luxury of allowing for the normal processing time. The third day after a customer signs an application for a stock machine, he expects an approval and an imminent delivery. Therein lies the real benefit of having a good financial outlet which is flexible, responsive, and aggressive enough to meet your needs. Three days turn around time, when the application is complete with financial statements, has become the norm rather than the exception. The financing documents are sent to the customer by overnight delivery the same day that approval is given, and very often are returned and filed before arrival of the machine at the customer's plant."

In the last 10 months, transactions under Makino LeBlond's financing plan have accounted for approximately 15 pct. of total sales. Over 70 pct. of the sales financed are stock machines from our small product lines which sell from $12,000 to $14,000 each. "Financing has been a successful tool at getting our machines into the small and developing businesses who wanted our product but couldn't amass the capital to pay net 30 day terms. This way they can make their payments out of cash flow generated by the equipment. Without financing, these developing businesses would have been limited to used or second-hand products.

"This is the obvious and expected conclusion of refinancing and assisting of new customers coming into the market. The real surprise, is that it's the only real assist we can give our manual machine customers, to get up over the financial hurdle and move on to CNC equipment. The real savings and productivity increases are at the CNC level and the sooner owners of manual equipment get up to that level, the sooner they'll be able to experience tremendous returns over their prior level of performance. The price differential between manual and CNC equipment has been the real hurdle. Customers who have bought manual LeBlond Makino machines in the past were reluctant to make that next logical step-up to CNC because of the price differential. Financing has now given us a way to overcome that hurdle. Customers who have manual LeBlond Makino equipment in house, and now are moving up to CNC, account for approximately 20 pct. of our financed sales. The last remaining 10 pct. of our financed sales are customers who already have and are familiar with CNC, and have sufficient financial strength to pay according to terms, but chose to finance the purchase rather than part with their precious cash," says Mr. Fels.

"As a final caveat," he adds, "caution must be exercised in formulating a plan to insure that new sales are, in fact, generated. Otherwise, all that's been accomplished is an erosion of your profit margin."

Years ago, it was pride of ownership. Common sense and uncommonly high prices for more and more common high tech tools have changed the machine shop world.

The annual sales volume of most machine shops was, and still is, under $5 million. Most began, and remain, family-owned operations. In the past, such shops financed purchase of new equipment through cash reserves or other internal means, an accepted practice for equipment with an expected life of 30 years or more.

"The introduction of numerically controlled (NC) and direct numerically controlled (DNC) equipment has radi-

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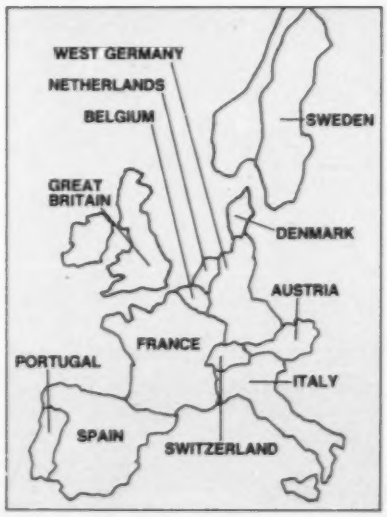

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cally changed the picture," says Thomas C. Morrison, vice president, Barclays American/Business Credit, Inc. "While these processes were first introduced more than 25 years ago, they are just now becoming affordable to smaller firms. And most forward-looking shops recognize that new equipment is the key to increasing productivity by speeding processes, improving quality and reducing labor costs.

"Even shops which have maintained profit margins and made moderate capital outlays must radically alter financing patterns if they are to survive and continue profitable operations."

A recent banking study indicates that a small to medium shop, with sales between $1 and $10 million, will run out of cash, increase leverage and face serious problems getting cash for day-to-day operations if receivables slow even slightly in response to the rising interest rates. "To compound the situation, the price of equipment rises rapidly in an inflationary period, and increased costs reflect negatively on margins and cash flow," says Mr. Morrison.

Clearly, shops which had traditionally made capital expenditures from cash reserves or financed only a portion of their equipment purchases will now turn to outside financing from business lenders. This approach serves not only to effect equipment purchases but also helps to preserve working capital.

"Offering a variety of financial services, business financing allows the machine shop owner to realize the value of existing assets through secured loans on accounts receivable, inventory, plant and equipment. Such loans are particularly suited to this capital-intensive industry, where assets frequently include older machinery. Business financing, in most situations, can relieve profit margin strain by refinancing existing equipment and improving productivity and quality through the purchase of modern equipment," says Mr. Morrison.

The approach is practical. "Fixed assets, such as existing equipment, tend to retain value and can generate funds by serving as collateral for a loan. This cash can be used to update existing machinery or purchase new tape-driven equipment. This demand, coupled with the exceptionally long life of machine tools, serves to support values."

To-be-purchased equipment can also serve as collateral for a loan. In fact, lenders will sometimes finance new equipment with no down payment.

Another secured lending tool frequently used by machine shops is accounts receivalbe financing.

"This financing method allows outstanding accounts, particularly slow paying ones, to generate immediate cash which can be used profitably elsewhere.

"Inventory loans normally accompany accounts receivable financing and allow shops to better match selling and production cycles which may be seasonal, cyclical or dependent upon the award of government and other contracts," Mr. Morrison says.

In many cases, secured lending arrangements can be shared with a bank. In such an arrangement, everybody benefits, with the borrower receiving needed funds at a "blended" rate.

Finally, the future of machine tool leasing and similar financing is projected to grow faster than the industry itself predicts Dr. John Breckling, senior analyst, Predicasts, Inc.

"In most cases, the reason for leasing is a consequence of the character of the end-use market, which resembles the construction field and other areas where relatively small companies are typical."

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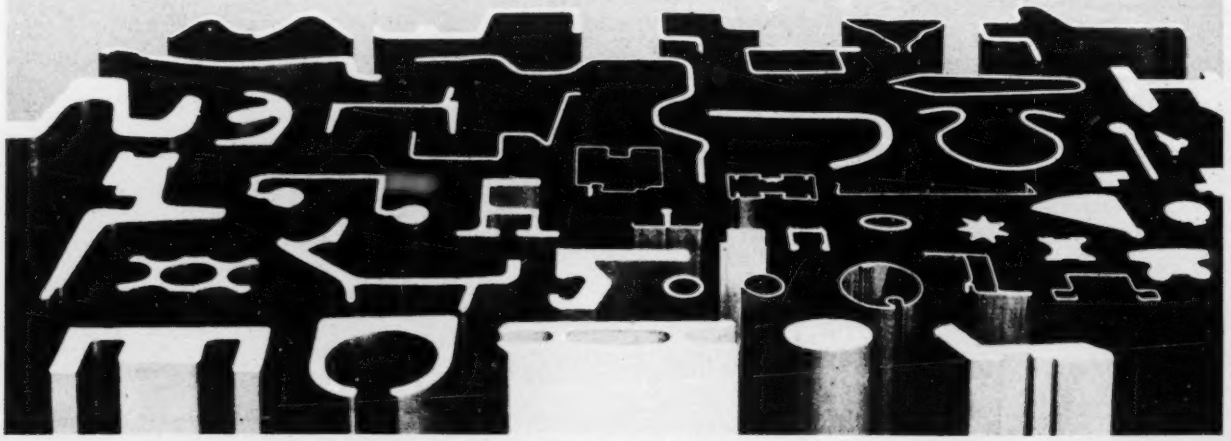

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